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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/995,085	11/27/2001	Yoshiyuki Uchinono	11411/002001	9568

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ROSENTHAL & OSHA L.L.P.  
1221 MCKINNEY AVENUE  
SUITE 2800  
HOUSTON, TX 77010

EXAMINER

DINH, TUAN T

ART UNIT

PAPER NUMBER

2827

DATE MAILED: 07/18/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/995,085

Applicant(s)

UCHINONO ET AL.

Examiner

Tuan T Dinh

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 06 May 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### DETAILED ACTION

1. Applicant's election without traverse of Group I (claims 1-7 in Paper No. 5 is acknowledged.

Claims 8-15 are canceled.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-5, and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Roberts (U. S. Patent 5,584,120).

As to claim 1, Roberts discloses a multilayer circuit board as shown in figures 1-10 comprising:

a substrate (1, column 7, lines 7-8) having a first surface (16-figure 5) and a second surface (15-figures 5-6) extending from an end and the first surface at a required angle relative to the first surface;

a multiplayer circuit (2, 8, and 14-figure 8) formed on the first surface of said substrate and composed of a plurality of circuit layers (see figures 5-10), each of which is provided with a conductive layer (2, column 7, line 9) having a required circuit pattern and an insulation layer (8, column 7, line 34) formed on said conductive layer;

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a second conductive layer (14, column 8, line 6) formed on the second surface of said substrate by which a layer-to-layer connection of said multilayer circuit is made.

The limitation "an insulation layer formed on said conductive layer by firm formation" has been consider. However, the presence of process limitation in product claims, which product does not otherwise patentably distinguish over prior art, cannot impart patentability to that product. In re Stephens 145 USPQ 656 (CCPA 1965).

As to claim 2, Roberts discloses a multilayer circuit board as shown in figures 5-6, and 9-10 wherein the second surface (15) of said substrate (1) is a side surface of a projection (an upper part which projects upward of the first surface 16) on the first surface.

As to claim 3, Roberts discloses a multilayer circuit board as shown in figures 5-6 wherein the first surface is a top surface of said substrate, and the second surface is a side surface of said substrate.

As to claim 4, Roberts discloses a multilayer circuit board as shown in figures 9-10 wherein the required angle between the first and second surfaces is an obtuse angle.

As to claim 5, Roberts discloses a multilayer circuit board wherein said multilayer circuit has an aperture (a distance between two pads 3 having multiplayer circuits-2, 8, and 14), through which a part of the first surface is exposed, and an electronic device (die 6-figure 3, column 7, line 32) is mounted in a concave formed in the exposed first surface, and an electrical connection between said multilayer circuit and said electronic

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device is made by a third conductive layer (9, column 7, lines 44-45) formed on an inner surface of said concave.

As to claim 7, Roberts discloses a multilayer circuit board as shown in figures 9-10 wherein said substrate (1) has a third surface extending at a different level from the first surface and a fourth surface extending from the other end of the first surface to an end of the third surface, and said multilayer circuit is formed on the first, third and fourth surfaces of said substrate, and said second conductive layer is formed on a side surface of a projection on the first surface to make the layer-to-layer connection of said multilayer circuit.

4. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Roberts (U. S. Patent 5,584,120) in view of Lee et al. (U. S. Patent 5,956,609).

As to claim 6, Roberts discloses a multilayer circuit board as shown in figures 1-10 wherein said second conductive layer (14) is a plurality of second conductive layers (not shown, but layer 14 could be made by more than one layers stacked together, ie. top and bottom of layer 14) to obtain plural layer-to-layer connections of said multilayer circuit. Roberts does not show each of second conductive layers is separated from an adjacent second conductive layer in the thickness direction by a second insulation layer.

Lee teaches a silicon wafer (20-figure 2A) comprising a second conductive layer (32-figure 2E) is separated from an adjacent second conductive layer in the thickness direction by a second insulation layer (34).

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It would have been obvious to one having ordinary skill in the art at the time the invention was made to use second conductive layers is separated from an adjacent second conductive layer in the thickness direction by a second insulation layer as taught by Lee to employ the multiplayer circuit board of Roberts in order to maintain a constant and controllable temperature of the multiplayer circuit board during a deposition process.

### ***Conclusion***

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kumar, and Blazier et al. disclose related art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan T Dinh whose telephone number is 703-306-5856. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L. Talbott can be reached on 703-305-9883. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-1341 for regular communications and 703-305-1341 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.


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July 13, 2002



DAVID L. TALBOTT  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800